

HOYA NEW



Oh There it is !

A pdf publication devoted to the Genus
Hoya ISSN 2329-7336

Editor:
Dale Kloppenburg

Volume I Issue I

Nov. 2013

Contents

This first issue will be devoted to the publication of some new hoya species from the Philippines. I have accumulated a backlog of unpublished species and feel it necessary to publish these species namely in the name of conservation. When a species is collected from the wild, I feel it is wise to identify it, propagate it and name it. In this way it will eventually get it into commercial channels, be distributed to all those interested in this genus and thus be preserved. If in the future the species is lost through natural causes or forest destruction it will still be here on earth in your collection.

The following new species are presented in PDF format with ISSN number.

1. **Hoya marvinii** Kloppenburg, Mendoza & Ferreras 2013
2. **Hoya unica** Kloppenburg, Mendoza & Ferreras 2013
3. **Hoya cupula** Kloppenburg, Mendoza & Ferreras 2013
4. **Hoya acanthominima** Kloppenburg, Mendoza & Ferreras 2013
5. **Hoya salmonea subsp. pallida** Klopp., Mendoza & Ferreras 2013
6. **Hoya nakarensis** Kloppenburg, Mendoza & Ferreras 2013

NOTE: please see the Website publication of these species at “www.rare-hoyas.com”. Go to end and click on “publication” to access new species publications.

Hoya marvinii Kloppenburg, Mendoza & Ferreras

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Hoya marvinii Kloppenburg. Mendoza & Ferreras sp. nova holotypus 14652 (PUH) hic designatus, similes **Hoya brittonii* Kloppenburg sed pedicilis longior et latior 0.50-1.4 cm longis x 0.07 cm latis contrstre 1.0 cm x 0.05 cm; calycis lobus longior et latior 0.12 cm longis x 0.09 latis contrstre 0.08 cm x 0.08 cm, corolla magni 0.92 cm diametro complanatus contrstre 0.70 cm et coronae lobus longior 0.21 cm contrstre 0.11 cm, differt.

This new species is similar to *Hoya brittonii* Kloppenburg but different, The pedicels are longer with a wider diameter 0.50 -1.4 cm versus 1.0 – 0.05 cm, and the calyx lobes are different, also longer and wider 0.12 cm x 0.09 cm versus 0.08 cm x 0.08 cm; the corolla diameter flattened is larger 0.92 cm versus 0.70 cm; the lobes of the corona are longer 0.21 cm versus 0.11 cm.

* *Hoya brittonii* is listed in IPPN as unresolved, for reasons I do not know nor understand. The species was collected by B. B. Britton at Badoc, Calapan, Mindoro Cr., Mindoro, Philippines 5 May 1953. The type sheet #19519, PNH was labeled by someone else as *Hoya gracilis* Schltr., that species is from the Celebes and is a bilobed species Hoya Section Acanthostemma whereas the species on the sheet has a coronal skirt so is in the Hoya Otostemma Section.

Micro-photos and data follow:



Pedicel: section enlarged ca. 67x. They are curved of varying lengths, terete, appear glabrous but under high magnification show a little short indumentum. Lengths 0.50 cm – 1.4 cm and 0.07 cm in diameter.



Calyx: outside surface enlarged ca. 22x, this surface is dull glabrous, edges sparsely ciliate, lobe apices obtuse, centrally thickened slightly. Base shortly globose.



Calyx: inside surface enlarged ca. 12x, inner surface is dull glabrous, cilia on edges, bases slightly overlapping, dark ligules present.

0.12 cm long and 0.07 cm at the widest.

Ovaries: narrowly triangular with narrow acute apex, glabrous, 0.10 cm long and base pair 0.06 cm wide.



Corolla: ventral surface enlarged ca. 23x, the surface is glabrous with a pentagonal lobed convex area around the center. The corolla is revolute with edged rolled centrally.

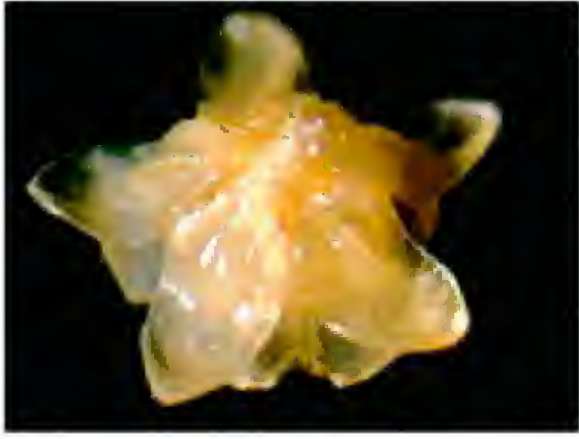


Corolla: dorsal surface enlarged as above, this surface is densely pubescent to sub villose, is revolute with a central pentagonal sunken area with less indumentum here.

Sinus – sinus	0.25 cm
Sinus – center	0.20 cm
Sinus – apex	0.30 cm
Apex – center	0.46 cm
Widest at the sinuses	0.25 cm



Corona: ventral view enlarged ca. 20x This is an Otostemma Section species (i.e. with a skirt) the skirt edge is continuous not deeply lobed as in some species, lobes with an almost squared off end at the lobe area, column long, relatively thin walled, clean around this area, all surfaces glabrous. Corona outer lobes thin and apex obtuse.



Corona: dorsal view enlarged 18x, center is raised, inner lobed short dentate, does not reach the center, dorsal sub-concave with a low central ridge forward, outer apex thin, translucent and obtuse, shirt below also thin.

Apex – apex	0.21 cm
Apex – center	0.22 cm
Ret. – ret. to center	0.05 cm



Flower side view enlarged ca. 12x, corona is sunken a little into the reflexed corolla, raised in the center with outer lobes lower but turned up slightly. See additional pictures of live flowers below by George Mendoza.



Pollinarium enlarged ca. 138x

Pollinium

length	0.24 mm
widest	0.08 mm

Retinaculum

length	0.07 mm
shoulder	0.03 mm
waist	0.02 mm
hip	0.03 mm
ext.	0.02 mm

Translator

length	0.13 mm
widest	0.04 mm

Caudicle

Bulb diam.	0.05 mm
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Translator/caudicle type: fb/cw

Leaf Measurements: in centimeters

	length	widest	petiole
1)	13.5	4.5	2.3
2)	11.3	5.1	1.9
3)	10.9	4.1	1.3
4)	10.1	3.9	1.9
5)	8.2	4.0	1.7
Range	8.2-13.5	3.9-5.1	1.3-2.3

Leaves: petiolate, opposite, glabrous, elliptic-ovate to obovate, base cuneate to sub-cuneate, apex shortly acute, much darker green above than below; pinnate nerved; leaf edges turn under.

Collection number GM #37. Collected at Dingalan, Aurora Province, Philippines by George Mendoza et al.

Named for a son of George Mendoza, who also collects plants with his father.



Photos of living plants by George Mendoza.

Cluster of ca. 35 flower. Pedicels of various lengths so a relative flat umbel.

Picture designations: DCS 7336-7344



References:

1. **Hoya brittonii** Kloppenburg published in Fraterna 4Q, 1, 1992.
2. Hoya Section Otostemma 1848. **Otostemma** Blume, Rumphia 4:30. Type: O. lacunosum Blume = (**Hoya lacunosa** Blume).

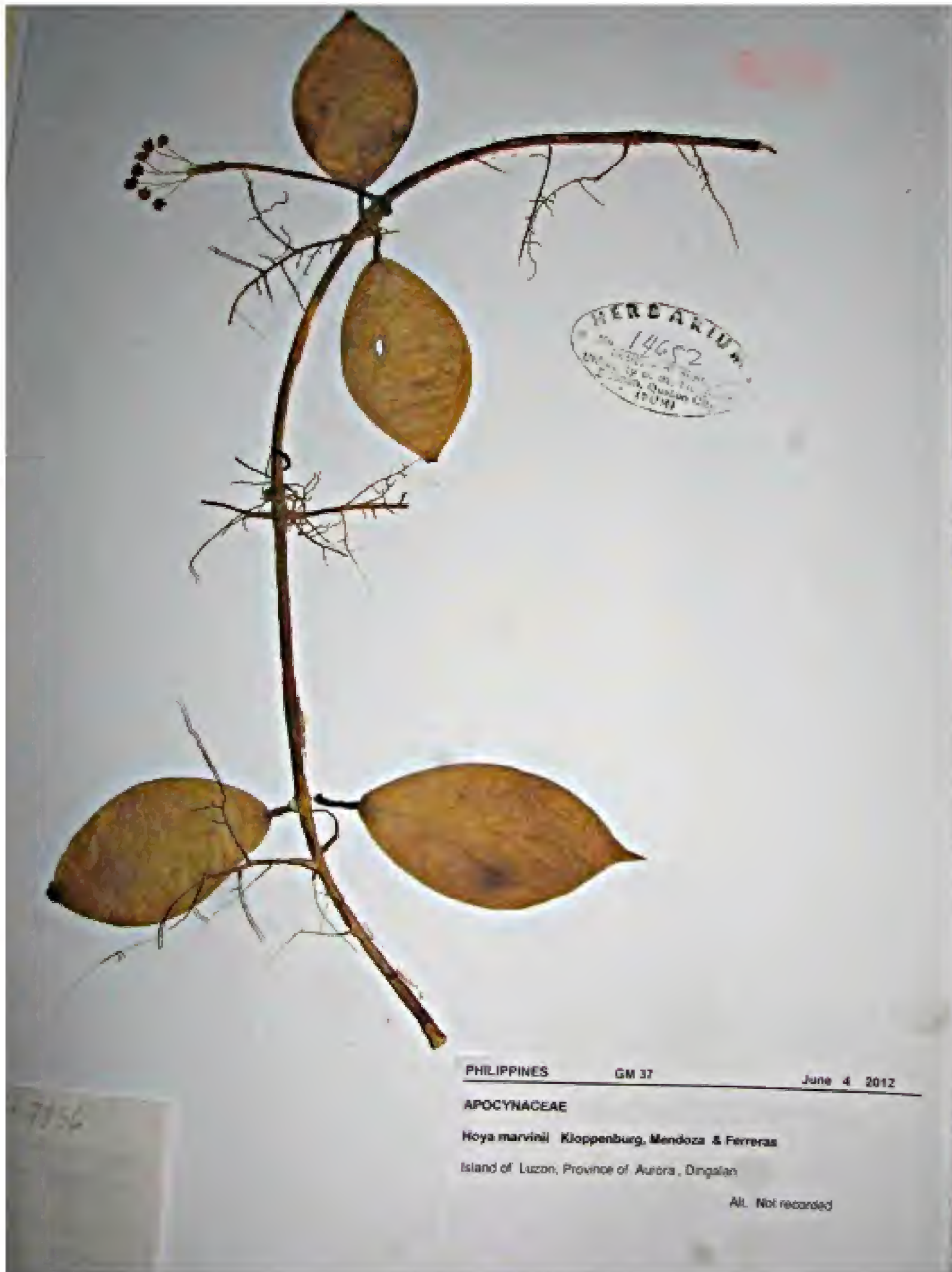
Contributors:

Ulysses Ferreras, botanist, plant collector, plant taxonomist.

Dale Kloppenburg retired: Lt. USNR, Graduate of UC Berkeley, plant genetics. Plant Breeder and Research Agronomist, now taxonomist of Genus Hoya.

George Mendoza, Landscape Artist, Nurseryman and Plant Explorer from Quezon City, Philippines, visit his web site www.forest-treasures.com.

Reduced copy of the Holotype sheet:



Hoya unica Kloppenburg, Mendoza & Ferreras

ISSN 2329-7336

Hoya unica Kloppenburg, Mendoza & Ferreras sp. nova holotypus 14621 (PUH) here designated. This new species is in the Section Otostemma (Blume) Miquel, having a skirt as part of the corona, There are only around 20 species in this section the majority being found in the Philippines. There is only two other species with a coronal length (Apex –apex) that measures 0.17 cm long and they are *Hoya pseudoleytenensis* and *Hoya microphylla* Schlechter 1913. There is no other published hoya species with a pollinia that is 26 cm long and 0.10 cm at the widest. There are some other unusual characters about this species as noted below the apices of the ovaries are unusual (granulated lip like circular ends), there are only a few species where the corona is sunken into the corolla and also with a pentagonal thickening on the corolla dorsal surface extending from sinus to sinus. Finally there are only a few species with dimorphic foliage, here most are elliptic with cuneate bases and acuminate apices but also a few small rather round leaves with obtuse bases and acute apices.

Detailed photos and measurements follow:

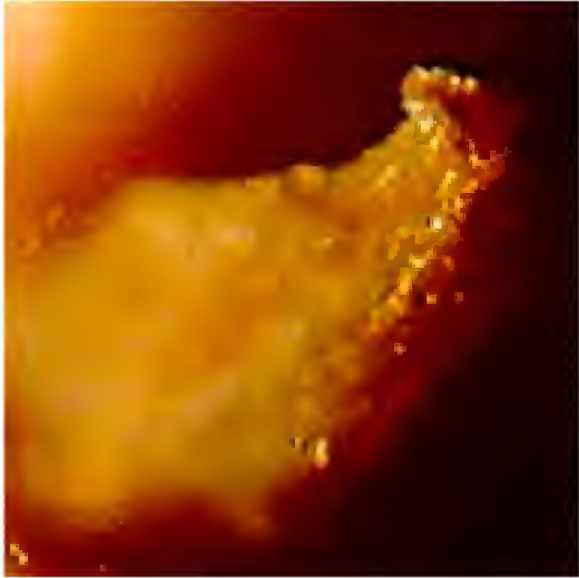


Pedicel: section, enlarged ca. 64x. Pedicels are curved of various lengths 1.0-1.2 cm, terete, glabrous 0.05 cm in diameter.

Calyx: enlarged ca. 36x. The sepals are sub-ovate glabrous on both surfaces, slight basal overlap, 0.11 cm long and 0.08 cm at the widest. Ligules present at the sinuses.

Ovaries: are columnar, glabrous 0.06 cm tall and base pair 0.05 cm wide.





Ovaries enlarged greatly to show the granulate circular protrusions to the apex.



Corolla: ventral surface enlarged ca. 10x, this surface is glabrous, central area is convex. Lobes 0.20 cm long so corolla is cut more than half way.

Sinus – sinus	0.20 cm
Sinus – center	0.18 cm
Sinus – apex	0.26 cm
Apex – center	0.38 cm
Widest	0.21 cm



Corolla dorsal (inside) surface enlarged as above center is concave (sunken), this surface is pubescent nearly villose in the areas from the corolla apices which are glabrous, to the circular concave central area. Hair cells point apically.



Corona: ventral view enlarged ca. 20x, the surfaces are glabrous, outer lobe keeled inward from the apex toward the shirt area, central column pentagonal and elongated, ca. 0.08 cm long and the surrounding area is smooth.



Corona side view (Photo of live flower by George Mendoza) in the center bottom is the column (white and surrounding it the lobed skirt with rounded edges. Center of corona is raised above the anthers but not covered by them (top center)



Corona dorsal view enlarged ca. 16x, scales are raised in the center, with spatulate inner ends, dorsal slopes out to outer rounded apices there is a low keel from the inner lobe about half way toward outer apex

Apex – apex	0.17 cm
Apex – center	0.19 cm
Widest	0.10 cm
Ret. – ret./center	0.05 mm



Pollinarium enlarged ca, 240x.

Pollinium

length	0.26 mm
widest	0.10 mm

Retinaculum

length	0.05 mm
shoulder	0.04 mm
waist	0.03 mm
hip	0.04 mm
ext	0.02 mm

Translator

length	0.13 mm
widest	0.04 mm

Caudicle

Top	0.05 mm
Depth	0.07 mm

Translator/caudicle Type:
fb/cw

Leaves: opposite, shortly petiolate, glabrous, narrowly elliptic, indistinct ply-nerved, anastomosing, base cuneate, apex long acuminate, ventral surface enervis, slightly granulate, midrib not visible. Nodal length varies sometimes very short, some leaves abort or drop easily, also dimorphism occurs with a few smaller ovate leaves as in *Hoya leytenensis*.

Leaf measurements: in centimeters

	<u>length</u>	<u>width</u>	<u>petiole length</u>
1)	7.9	2.2	1.0
2)	5.7	2.1	1.4
3)	6.0	2.9	1.0
4)	5.5	2.1	0.6
5)	4.9	2.0	0.6

Range: 7.9 – 4.9 2.9 – 2.0 1.0 – 0.6

Collected by George Mendoza et al at Catanduanas, Bicol Province, Philippines.

Pictures of living flowers by George Mendoza. Collection number GM # 49.



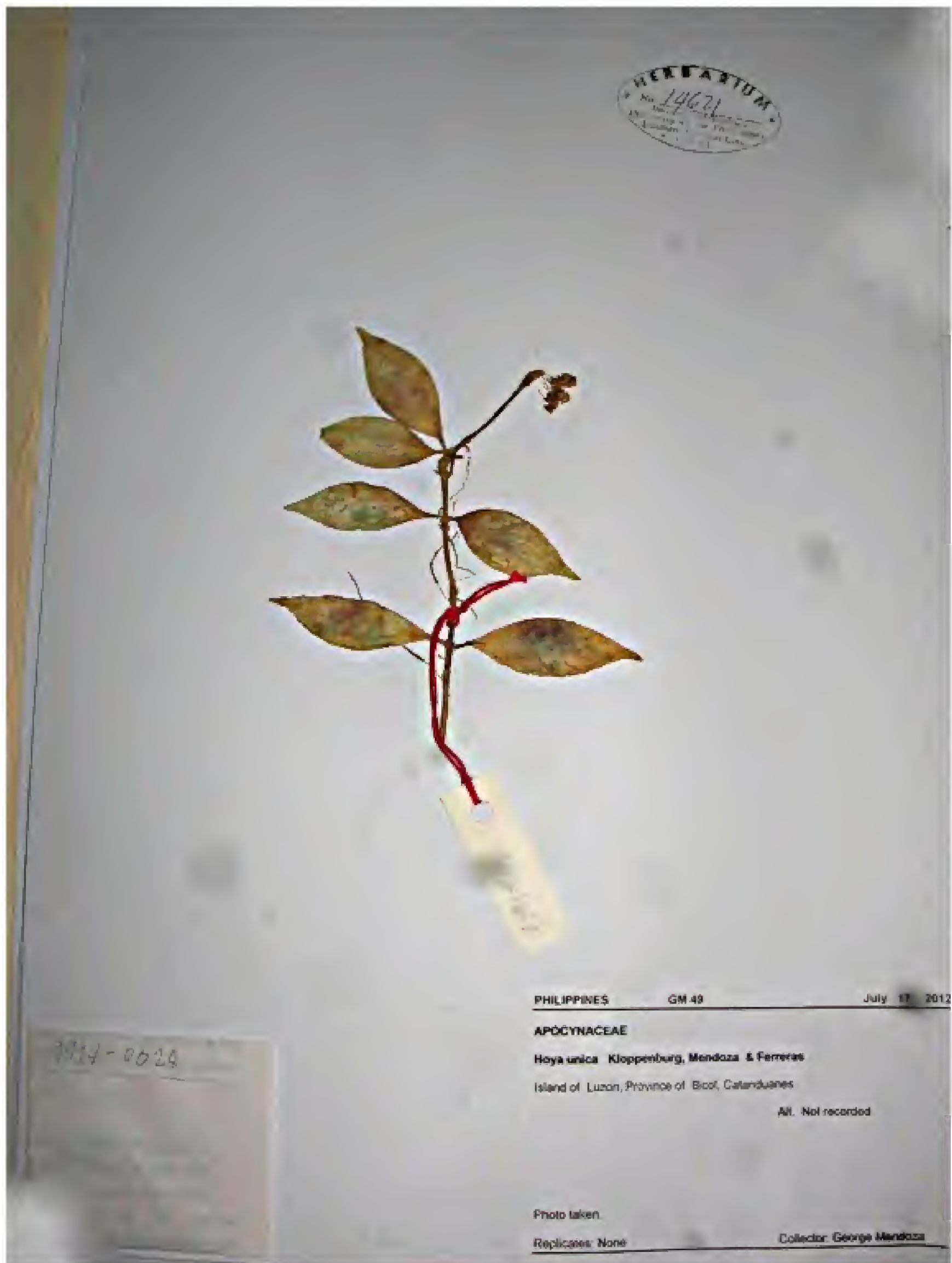


DSC 9994-0028



Ca. 31 flowers.

Reduced copy of the Holotype sheet:

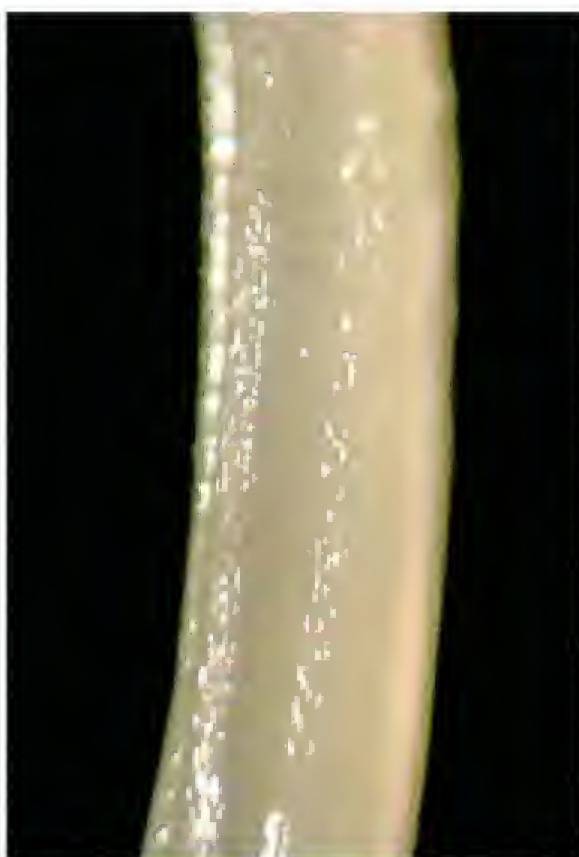


Hoya cupula Kloppenburg, Mendoza & Ferreras

ISSN 2329-7336

Hoya cupula Kloppenburg, Mendoza & Ferreras sp. nova holotypus 14646 (PUH) hic designatus, hic Section Acanthostemma (Blume) Kloppenburg, folia similes *Hoya leytenensis* (Elmer) Burton 1991 sed coronae processes non cillatus inter sinu et folia nullus ad rotundatia et petioli longior 0.5-0.7 cm contrstre 0.3-0.5 cm longis.

This species is in the Section Acanthostemma, having bi-lobed coronal scales, it is similar in some ways to *Hoya leytenensis* Elmer ex Burton but it does not have the dimorphic leaves, ie. no round leaves and the petioles are longer here 0.5 – 0.7 cm versus 0.3- 0.5 cm also no ciliated processes between the sinuses or of a ciliate rim around the pistil as with *Hoya leytenensis*. The species is named for the cup formed by the apical area of the bilobes.



Pedicel: section enlarged ca. 40x, it is curved, glabrous 1.2 cm long and 0.06 cm in diameter.

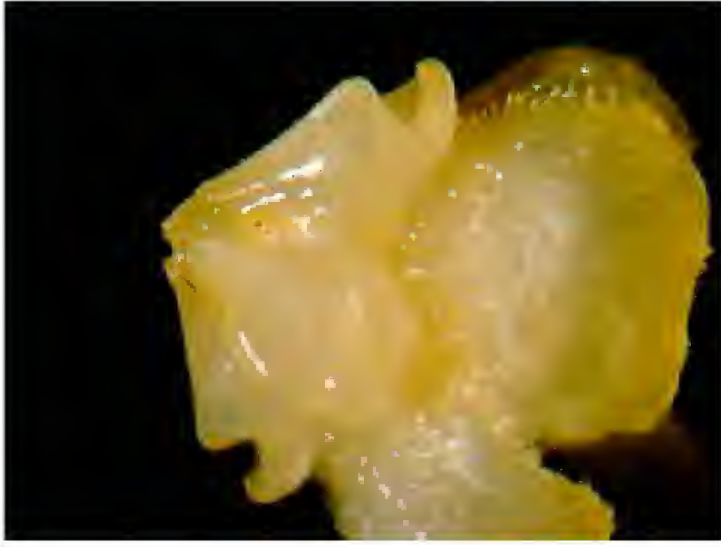
Calyx: below side view enlarged ca. 33x. The sepals are granulate outside, slick glabrous inside, I did not observe ligules. Sepals 0.10 cm long and 0.06 cm at the widest, apices obtuse.



Ovaries: glabrous 0.09 cm tall and the base pair is 0.06 cm wide. Apical area contracted slightly.



Ovary apical end greatly enlarged to show the surface (finely granulate) and the apex with some sub-acute projections.

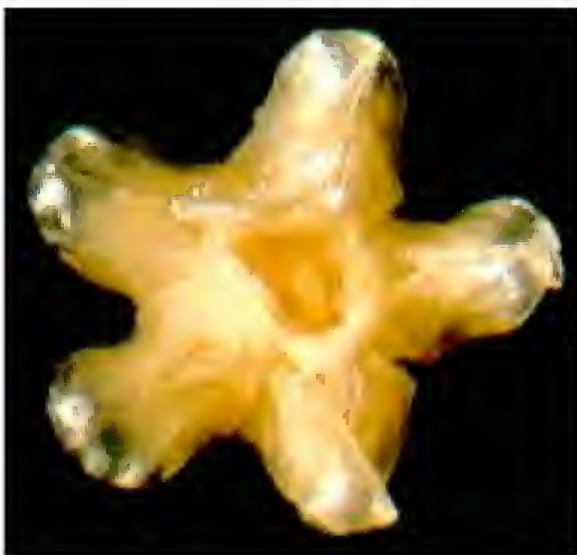


Flower side view enlarged ca. 27x. The corolla is revolute, ventral surface is glabrous, dorsal is pubescent except for the lobe apices. Corona is upright, inner lobes are spatulate and do not cover the center, dorsal surfaces slightly concave with some lobes having a thin central keel; outer lobe is obtuse and cut off below, also bilobed with lobes extending from below the scales.



Corolla: dorsal surface enlarged ca. 20x, center not much thickened, lobes cut slightly more than half way.

Sinus – sinus	0.18 cm
Sinus – center	0.15 cm
Sinus – apex	0.25 cm
Apex – center	0.32 cm
Widest	0.18 cm

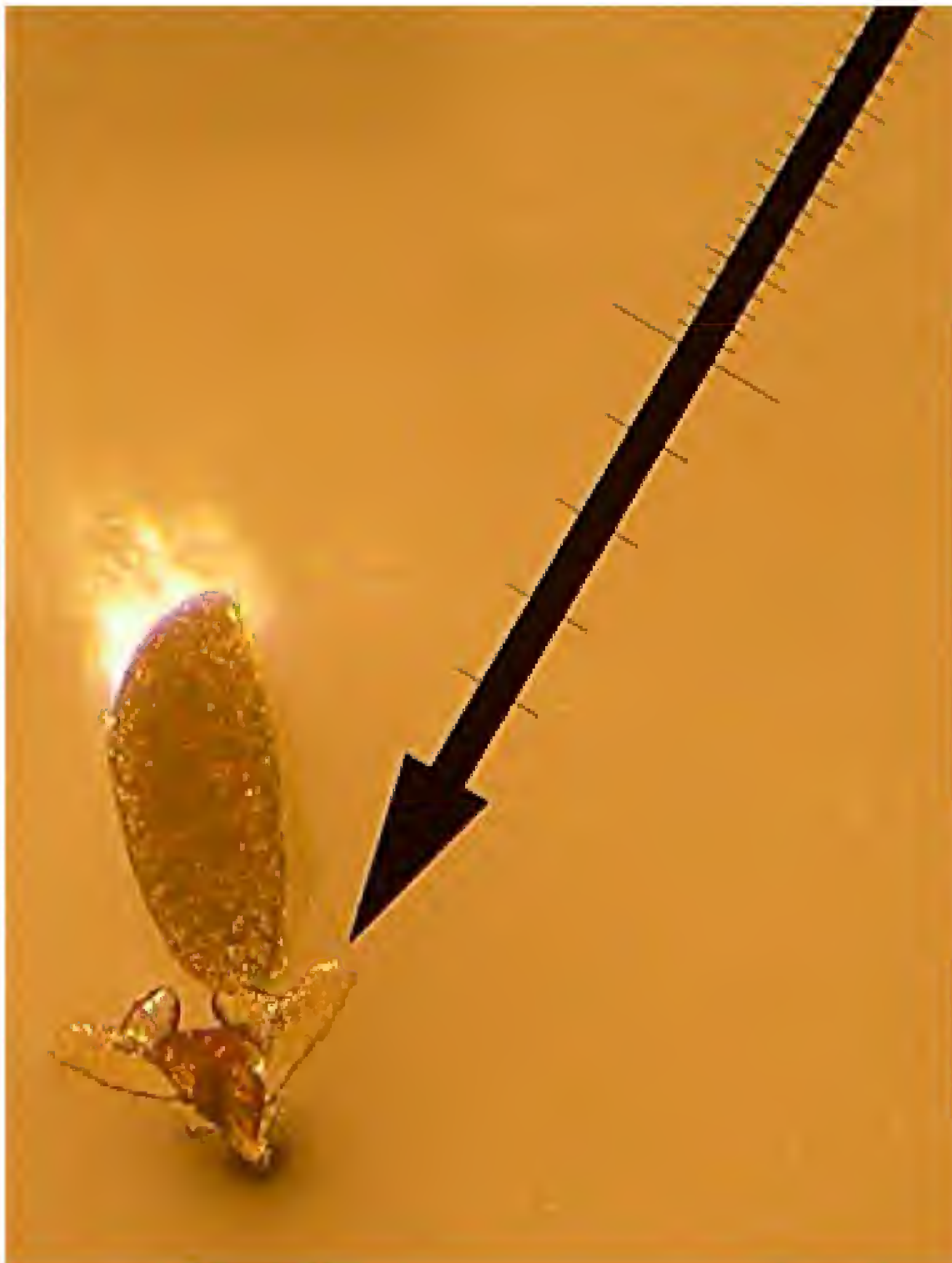


Corona: dorsal view enlarged ca. 20x. The surfaces are glabrous, lobe sides are sulcate, outer apex is obtuse and channeled to the column, area around the column is smooth.

Apex – apex	0.12 cm
Outer apex- center	0.13 cm
Center – bilobe apex	0.16 cm
So bilobes extend	0.03 cm
Ret. – ret./center	0.05 cm
Aw. – aw./center	0.10 cm



Individual scale enlarged ca. 47x, note the outer scale apex is obtuse rounded and inner lobe flat spatulate, bilobes below left with rounded touching apices and cupped dorsal central area.



Pollinarium enlarged ca. 210x

Pollinium

length 0.21 mm
widest 0.08 mm

Retinaculum

length 0.05 mm
shoulder 0.07 mm
waist 0.03 mm
hip 0.04 mm
ext. 0.02 mm

Translators

length 0.08 mm
widest 0.02 mm

Caudicle

bulb diam. 0.02 by 0.03 mm

Translator/caudicle type:

fb/cw

Leaves: opposite, petiolate, glabrous, ovate-elliptic, base cuneate, apex sub-obtuse, nerves obscure but pinnate, dorsal convex, ventral surface dull pale colored. Stems and petioles with raised granulations, a rough surface.

Leaf measurements: in centimeters

	<u>length</u>	<u>width</u>	<u>petiole length</u>
1)	4.3	1.7	0.7
2)	3.9	1.6	0.6
3)	3.6	1.7	0.6
4)	2.9	1.8	0.7
5)	2.6	1.6	0.5

Range: 2.6- 4.3 1.6 – 1.8 0.5 – 0.7

Photos below by George Mendoza:





19 flowers in cluster.



Collected by George Mendoza et al at General Nakar, Quezon Province, Luzon, Philippines. Collection number GM # 56.

Reduced copy of the Holotype sheet:



Hoya acanthominima Kloppenburg, Mendoza & Ferreras ISSN 2329-7336

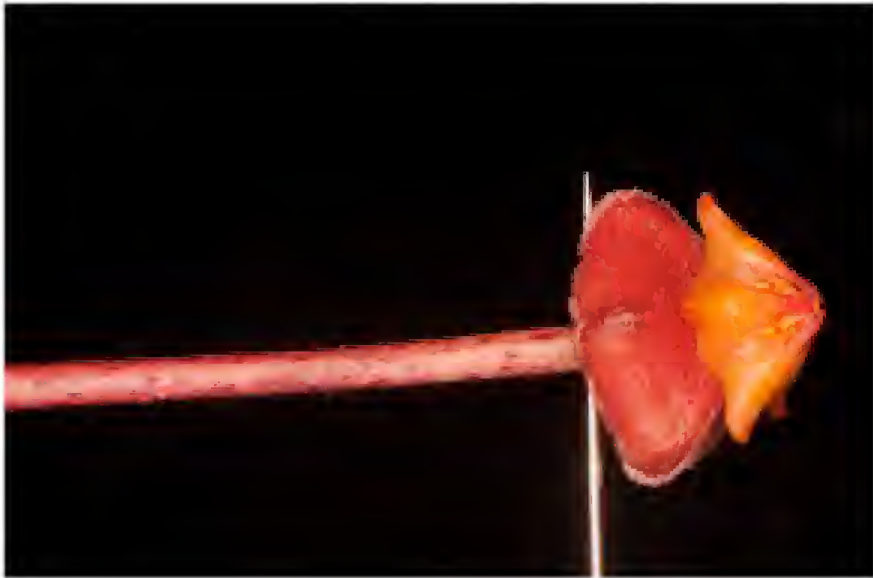
Hoya acanthiominia Kloppenburg, Mendoza & Ferreras sp. nova holotypus 14648 (PUH) hic designatus. Hoya Section Acanthostemma (Blume) Kloppenburg. Florum minimus. Planta epiphytica, ramosa, ramis caulibusque elongatis, teretibus, glabrous, bene foliatis; foliis petiolatis ellipticis, glabris, textura coriaceis, 4.4 - 8.5 cm longis, medio fere 1.0-2.1 cm latis, petiolo circ. 1.2-1.3 cm longo, carnosio; cymis laxis, sub-planis. circ. 13-floris, pedunculo tereti, glabro, ca. 8.5 cm longo, pedicellis minimis glabris, pro parte maxima 1.9 cm, floribus in genere inter minimos; calycis segmentis oblongis obtusis glabris, longitudine vix 0.07 cm ed sub-ciliatus, attingentibus; corolla revoluta usque ad medium fere 5-lobata, extus glabra, intus ex parte breviter et puberulus; coronae foliolis apicem contrastre adscendentibus spathulatus, dorso obtusis superne medio callo oblongo donatis, auriculis 2 supra apicem dorsalem longius productis; anthera apicem foliola non excedente; poliniis oblongoideis, translatoribus perbrevis, retinaculo minuto rhomboideo fere aequilongis.

Epiphytic, branched, branches with long stems, round, glabrous, well leaved; leaves petiolate, elliptical, glabrous, with leathery textured, 1.7-2.2 cm long, 1.3-1.8 cm long in the middle, petiole about 1.2 cm long, fleshy; cymes loose nearly flat, about 13 floweres, peduncles round, glabrous, about 8.5 cm long, with the pedicels threadlike glabrous, up to 1.9 cm long; flowers in general among the smallest; with the segments of the calyx oblong obtuse, glabrous, longitudinally scarcely attaining 0.1 cm long, edges somewhat ciliate; corolla reflexed, 5 lobed up to near the middle, outside glabrous, inside partly puberulous, leaflets of the coronal apex ascending spatulate, top obtuse with a oblong hump above the middle, 2 long earlike appendages above the outer side of the apex; anther leaf apices not overtopping inner apex; pollinium oblong like, translators very small, retinaculum minutely rhomboid about equally long.

This new species was Collected by George Mendoza et al, at Meragondon, Real Quezon, Luzon, Philippines. Specimen number GM #50.



Calyx with ovaries on a small section of the pedicel enlarged ca. 27x. The pedicels are curved of various lengths 1.0 cm -1.9 cm long and 0.3 cm diameter, sepals are sub triangular, granulate outside, edges ciliate, with a basal overlap of 1/2, they are 0.07 cm long and 0.07 cm at the widest. Ovaries are columnar glabrous 0.08 cm long and base pair 0.03 cm wide.

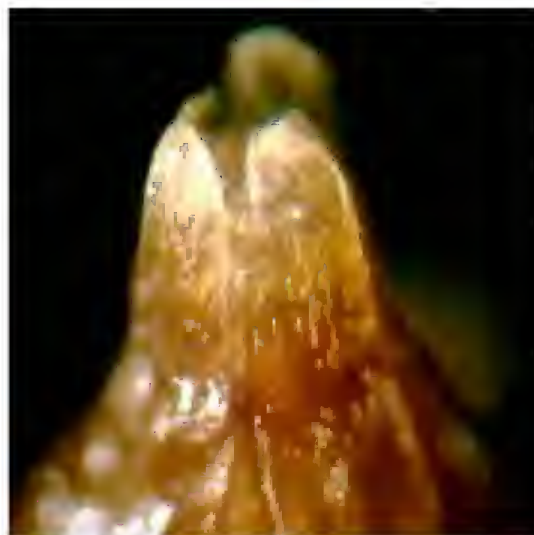


Picture by George Mendoza from a living flower. The corolla is revolute and dorsal puberulent mainly at the corolla sinuses and the lobes centrally finely granulate. Enlarged ca. 12x. Ventral coronal surface is glabrous.

Sinus – sinus	0.21 cm
Sinus – center	0.16 cm
Sinus – apex	0.22 cm
Apex – center	0.32 cm
Widest	0.22 cm



Dorsal view of a flower enlarged ca. 14x. The bi-lobes reach the corolla sinuses and slightly beyond. Inner lobes are spatulate, bent over the center but leaving a small portion exposed 0.30 cm in diameter. Outer lobes tapering between the bi-lobes to a sub acute apex and much below inner lobes.



Coronal inner apex greatly enlarged to show the sulcate surface and the lobes curving over the center and nearly erect above the lower lobes.

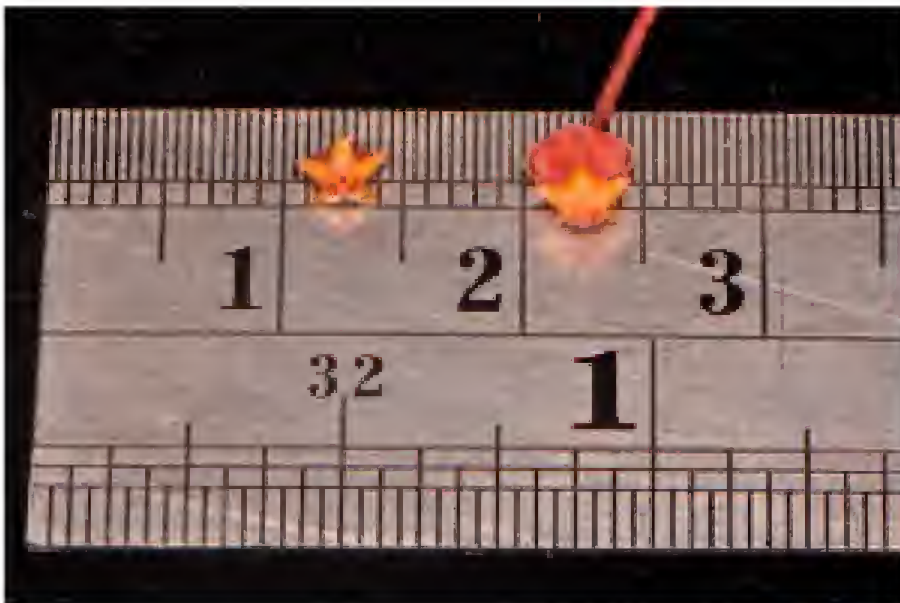
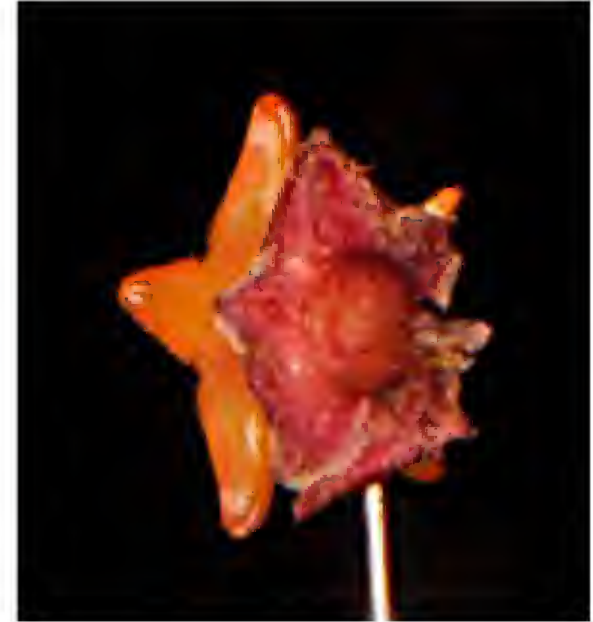


Corona side view enlarged ca. 28x. The surfaces are glabrous, center very upright, outer lobe tapering to a narrow apex, dorsal is channeled.

Apex – apex	0.15 cm
Apex – bi-lobe ends	0.20 cm
Widest	0.05 cm
Ret. – ret./center	0.08 cm
Aw. – aw./center	0.15 cm



Ventral view of the corona enlarged as above, channeling is due to the straight bi-lobes, the center here is rather jumbled, but it appears there are bulbous protrusions from the central column. The live photo at the right shows the more rounded outer bi-lobes.

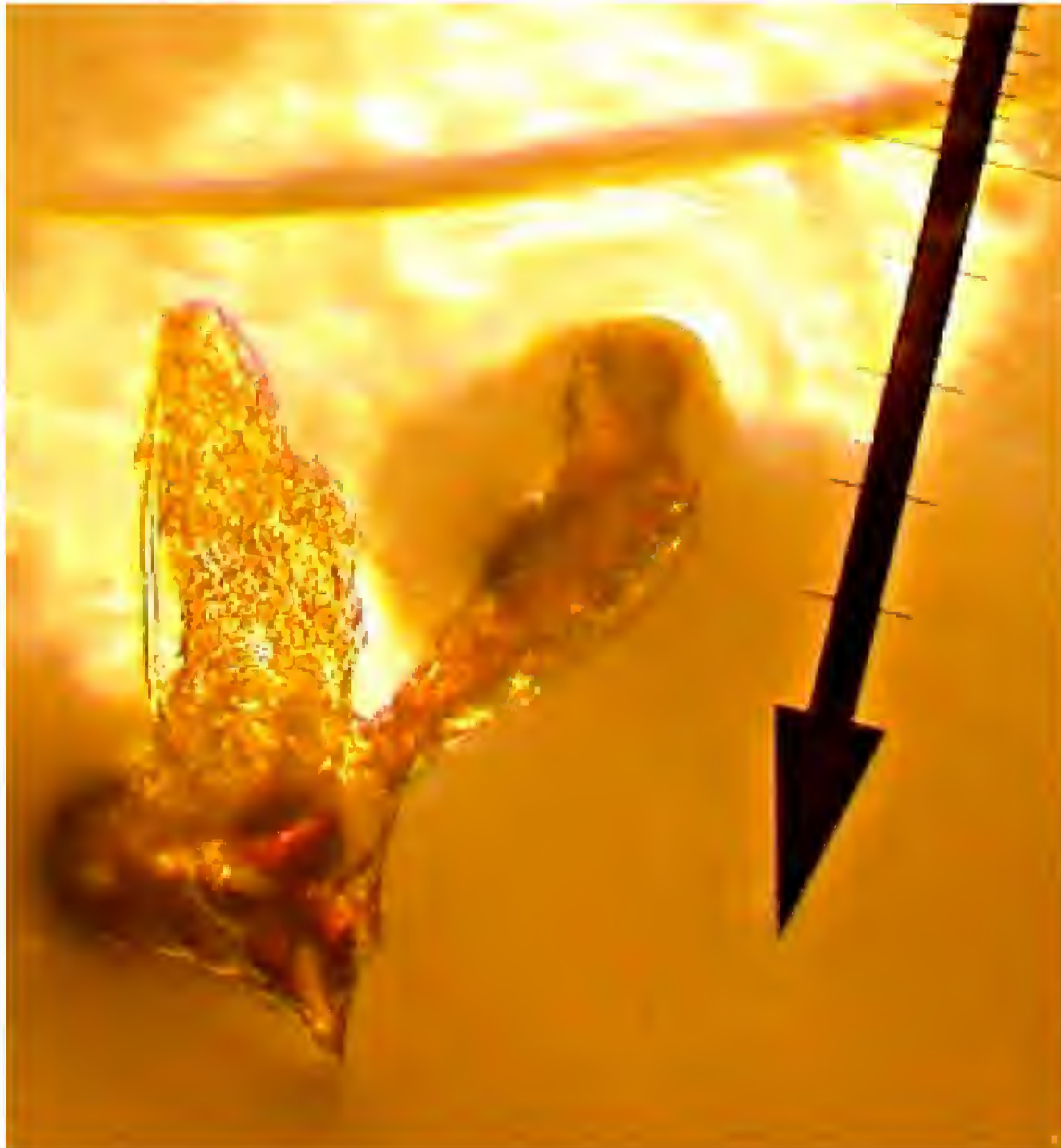


This is a very small flowered hoyas species.



Pollinarium enlarged ca. 110x, very small and difficult to extract and photograph.

Photo below shows the retinaculum better enlarged ca. 210x.



Pollinium

length 0.23 mm
widest 0.10 mm

Retinaculum

length 0.07 mm
shoulder 0.07 mm
waist 0.03 mm
hip 0.05 mm
ext 0.06 mm
overall length 0.13 mm

Translator

length 0.14 mm
depth 0.03 mm

Caudicle

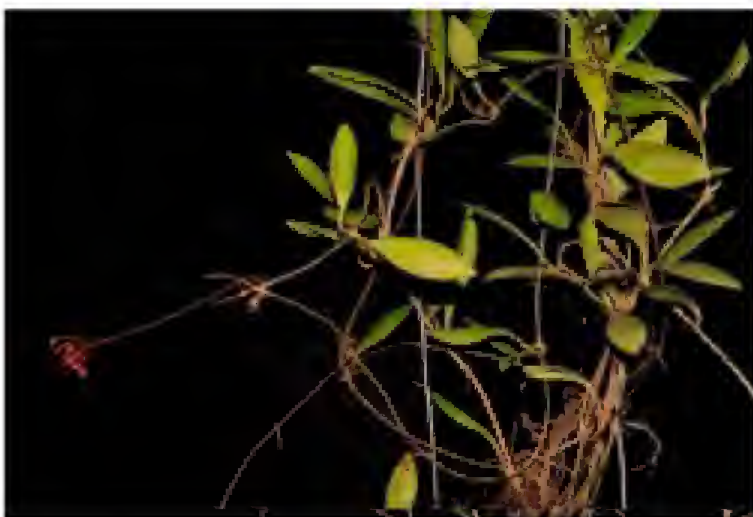
bulb diam 0.05 mm

Translator/caudicle

Type: fb/cw

There is no other Philippine bi-lobed hoya species with pollinaria this small except *Hoya bilobata* Schlechter which has foliage completely different than this species. The nearest in size and shape is an Otostemma Section species *Hoya brittonii*.

Photos by George Mendoza of this plant. DSC 8617-8663



Ca. 13 flowers/cluster.



Leaves: elliptic, with curved petioles surface dull green edges turn under slightly, they are enervis with midrib showing below on a lighter green surface.

Leaf measurements: in centimeters (cm).

	<u>length</u>	<u>widest</u>	<u>petiole</u>
1.	8.5	2.1	1.2
2.	8.0	1.9	
3.	6.0	1.5	1.2
4.	4.4	1.0	1.3

Reduced copy of Holotype sheet:



Hoya salmonea subsp. pallida Kloppenburg, Mendoza & Ferreras

ISSN 2329-7336

Hoya salmonea subsp. pallida Kloppenburg, Mendoza & Ferreras, subspecies nova, holotypus 14649 (PUH) hic designatus. Foliis anguste ellipticus, acuminatus, glabris, palmatis, reticulo nervorum sub-distincto, 13.4-19.7 cm longis et 5.1-7.5 cm latis, petiole crnoso brevi 2.7-3.7 cm longo. Cymis umbelliformibus, pedicillis glabris, strictus 1.2 cm longis, teretem; calyces segmentis lanceolata glabris 0.13 cm longis et 0.04 cm latis linearis sub-ciliatus; corolla rotatam, penta-lobata, usque infra medium, lobis, 0.80 cm diametro complanatus, extus glabram, intus uniformiter papilosa; coronae lobis anteriore spatulate, posterior adsentibus acutus, dorso concavis, pagina subtiliter sulcatis, subtus usque ad basin caniculatis, polliniis parvus, 0.35 mm longis, tranmslatoribus deltatus, retinacula 0.10 mm longis.

This subspecies is similar to the species except smaller in nearly all parts except the pollinia and retinaculum and the flower color is more yellow toned and a little more pale. The flower clusters also have about $\frac{1}{2}$ as many flowers in a cluster. It could be easily categorized as a new species because of the many differences yet all the differences are slight.

Detailed measurements and photos follow:



Pedicel: section enlarged ca. 87x, they are strict, glabrous granulate 1.2 cm long and 0.04 cm in diameter.

Calyx: enlarged ca. 32x, the sepals are linear with a few cilia, 0.13 cm long and 0.04 cm at the widest, calyx base is globular (bulbous). No ligules observed.



Ovaries: are stubby, glabrous 0.06 cm tall and base pair 0.06 cm wide, the apices are modifies.



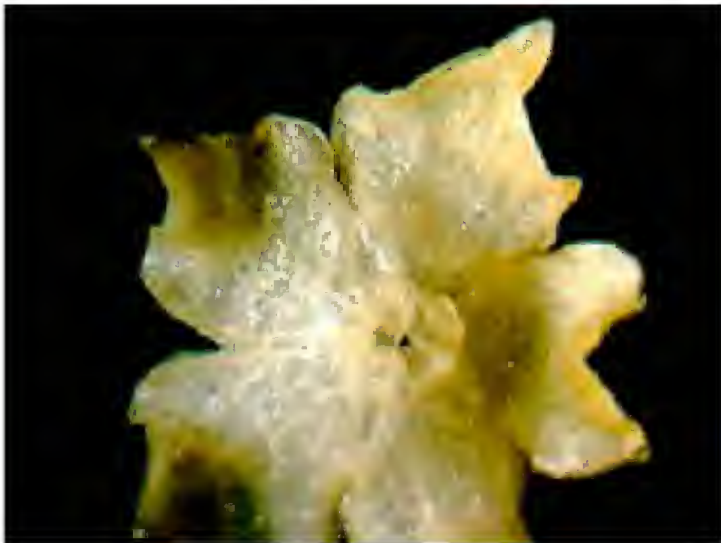
Ovary apices photo to the right showing apex modification here an extended rather flat ring like structure.



Corolla: ventral surface enlarged ca. 13x, this surface is glabrous, at anthesis the corolla is rotate with apex and sides turned under.

Sinus – sinus	0.17 cm
Sinus – center	0.13 cm
Sinus – apex	0.29 cm
Apex – center	0.40 cm
Widest	0.32 cm

The corolla lobes are widest 0.10 cm above the sinuses, more broad than normal.



Corolla dorsal surface enlarged as above, this surface is evenly and filly puberulous, center rim a little thickened and raised slightly.



Corona: ventral surface enlarged ca. 25x. The lobes are channelled with the central portion of the channel sides pushed out to form a bulbous area out from the central column that is relatively long 0.03 cm tall and opening 0.08 x 0.06 cm, relatively thin walled. Apex ends are sub acute and turned down slightly.

Dorsal view below from live material enlarged ca. 20x the lobes are glabrous boat shaped with the inner and outer lobes raised above the center but outer lobe raised above the inner ones. Inner lobes are spatulate and most touch in the center, dorsal is concave edges rounded, outer apex bends down slightly, lobe are relatively thick.



Apex – apex	0.16 cm
Widest	0.10 cm
Ret. – ret./center	0.05 cm
Aw. – aw.	0.10 cm
Aw. – center	0.09 cm



Corona scale side viewed from preserved flower, (compare to above for actual shape). The bottom is starkly sulcate (right) anthers are thin (left) normally covered or almost covered by the spatulate inner coronal lobe.

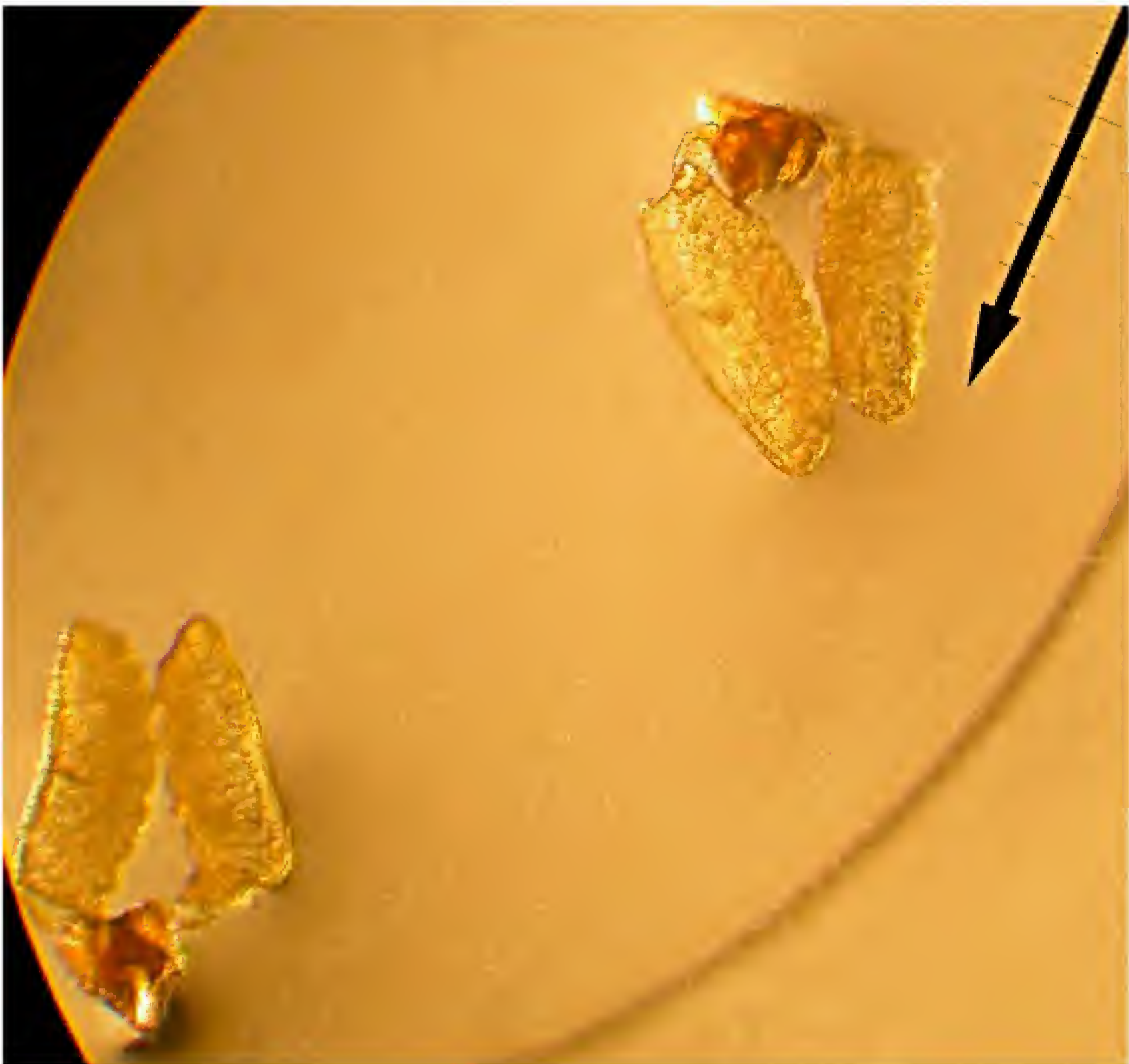


Photo above of two pollinaria enlarged ca. 110x.



Pollinia from several flowers all somewhat deformed, shriveled (the pollinia) the upper right one seems best for measurements.

Pollinium

length	0.35 mm
widest	0.17 mm

Retinaculum

length	0.10 mm
shoulders	0.15 mm
waist	0.07 mm
hip	0.11 mm
ext.	0.08 mm

Translator

length	0.11 mm
widest	0.05 mm

Caudicle

Translator/caudicle type: p/o ?

bulb diam.	0.05 mm
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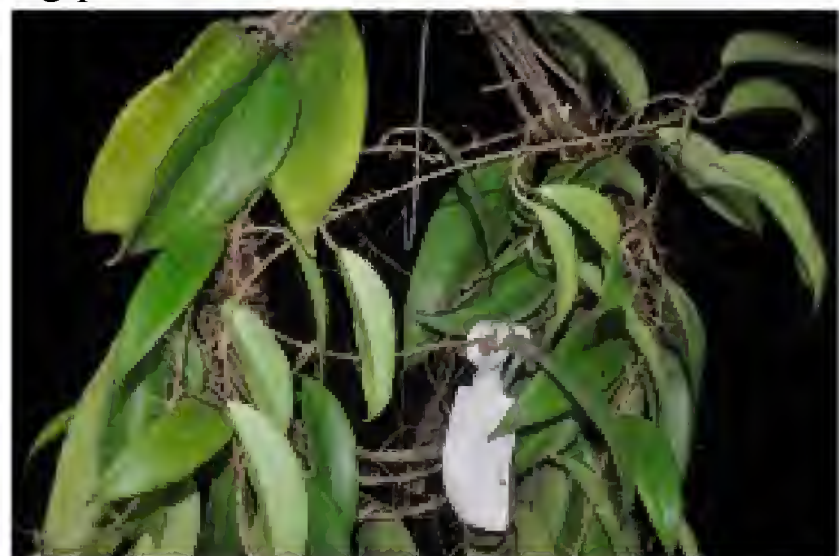
Collected by George Mendoza et al at Digalan, Aurora Province, Philippines.
Collection number GM #64

Leaves: opposite, petiolate, glabrous, base elliptically rounded, apex acute, palmate nervation, nerve angle ca. 30°, undersurface lighter green in color and nerves not visible. Secondary nerves up to sub-perpendicular to the midrib. Leaf edges turned under sometimes.

Leaf measurement: in centimeters

	length	width	petiole length	
1.	19.7	7.5	3.7	peduncle length 8.7 cm
2.	18.5	8.1	4.5	
3.	16.5	6.1	4.0	
4.	14.5	6.0	2.8	
5.	13.4	5.1	2.7	
Range	13.4-19.7	5.1-7.5	2.7-3.7	

Pictures below by George Mendoza from living plants.



Cluster semi-globose of ca. 13 flowers



Reduced copy of the Holotype sheet:



Hoya nakarensis Kloppenburg, Mendoza & Ferreras 2013

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Hoya nakarensis Kloppenburg, Mendoza & Ferreras sp. nova, Holotypus #14620 (PUH) hic designatus. Frutex scandens, inflorescentiis exceptis glabra, ramis teretibus, foliis carnosis ellipticus, basi obtusis, apice apiculata 3.8-7.9 cm longis et 1.6-2.6 cm latis, plinervis; umbelliformibus pedicellis gracilibus filiformibus 2.5 cm longis et 0.04 cm diametro. Calyces segmentis triangularibus, aliquando ciliatus 0.11 cm longis et 0.07 cm latis, cum ligulae dubius; corolla rotate ca. 0.68 cm diametro complanatus, penta lobata usque infra medium, lobis ovato triangularis, extus glabram, intus dense puerulosa praeter ad centram minora: coronae lobis anteriore spatulate dorso concavo et habens carina, lobis posteriore ascendentibus, obtusis, subtus usque ad basin caniculatis. Pollinarium minore.

This new species is most similar to *Hoya bifunda* Kloppenburg, Siar, Mendoza, Cajano, Guevarra & Carandang, however the sepals here are not as ciliate and I did not find any ligules; the ovaries here are much shorter 0.06 cm tall versus 0.09 cm and the corolla diameter flattened is smaller 0.68 cm versus 0.90 cm. One other major difference is the corona here is sunken into the corolla center and the feature for which *Hoya bifunda* is named (inner ventral corona pads) are not distinguished here.

Detailed photos and measurements below.



Pedicel: section enlarged ca. 110x, it is strict, terete, glabrous 2.5 cm long and 0.04 cm in diameter.

Calyx: enlarged ca. 20x, the sepals are triangular, granulate outside, slick glabrous inside, 0.11 cm long and 0.07 at the widest, I did not see any ligules. Edges slightly ragged and an occasional cilia.





Ovaries: enlarged ca. 42x, the ovaries are short dome shaped, glabrous, 0.06 cm tall and base pair 0.06 cm wide; apex slightly modified.

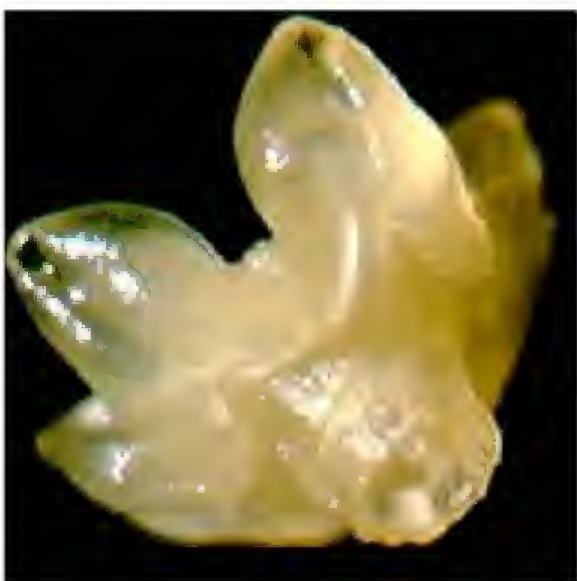


Corolla: ventral surface enlarged ca. 19x. This surface is glabrous, lobes are widest above the sinuses, apex acute. Center is slightly convex.

Sinus – sinus	0.18 cm
Sinus – center	0.18 cm
Sinus – apex	0.23 cm
Apex – center	0.34 cm
Widest	0.22 cm



Corolla dorsal surface enlarged as above, this surface is very densely puberulous except the very lobe apices and less under the corona (center area). At anthesis it is rotate with the lobe edges and the apices are turned under. Corona is sunken into flower center.

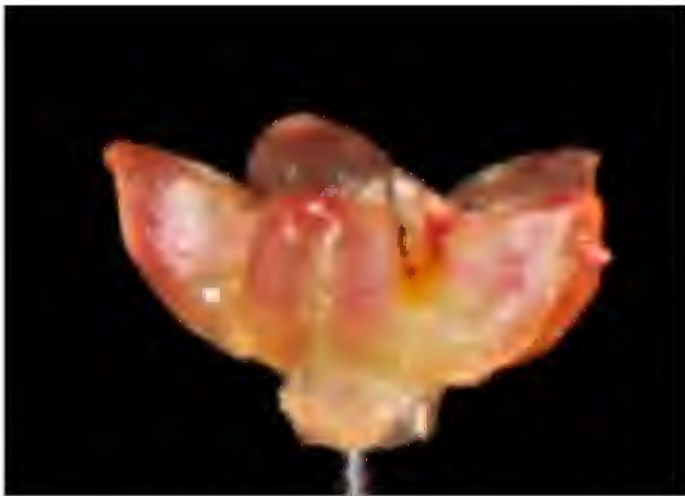


Corona: ventral view enlarged ca. 40x. The surfaces are glabrous, lobes are channeled, sides are diagonally sulcate, channel begins slightly inward from the outer apex leaving a triangular or dimple like area. The lobes do not reach the central 0.05 cm long central thin walled column that has relatively thick sides, surrounding area is smooth.



Dorsal surface of the corona enlarged as above, lobes are shallow boat shaped. Inner lobes are short spatulate keeled, dorsal is concave with a forward umbo, edges are rounded, outer apex obtuse and thin where channel below begins inward. Anther wing apices are acute.

Apex – apex	0.10 cm
Apex – center	0.13 cm
Widest	0.07 cm
Ret. – ret./center	0.05 cm
Aw. - aw./center	0.10 cm



Corona side view of live flower by George Mendoza showing the lobe outer apex turns under slightly, center raised with the anthers showing slightly above the lobe inner apices; the conspicuous column shows, bottom below.



Coronal scale side view. The scale surface out from inner lobe is sulcate, here the anther (right) is bent down below the inner lobe apex, scale is relatively thick.

Collected by George Mendoza et al at General Nakar, Quezon Province, Luzon, Philippines. Collection number GM #70, photos numbered DSC 9590-9619.



Pollinarium enlarged ca. 250x.

Pollinium

length 0.26 mm
widest 0.13 mm

Retinaculum

length 0.06 mm
shoulder 0.09 mm
waist 0.03 mm
hip 0.06 mm
ext. 0.03 mm

Translator

length 0.05 mm
widest 0.02 mm

Caudicle

bulb diam. 0.03 mm

Translator/caudicle type:
d/o

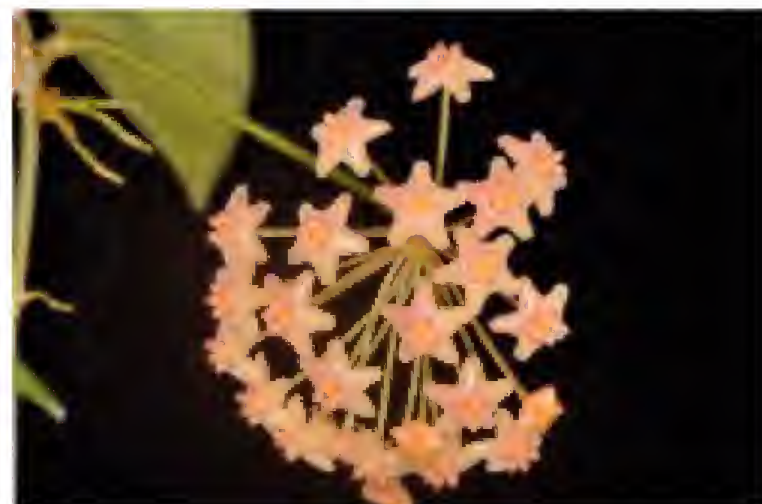
Leaves: opposite, petiolate, glabrous, elliptic to ovate, ply-nerved, lighter than the leaf surface, anastomosing but not real distinct, base is sub-cuneate to obtuse; apex short acuminate.

Leaf measurements: in centimeters

	<u>length</u>	<u>width</u>	<u>petiole length</u>
1)	7.9	2.6	1.3
2)	5.5	2.5	0.9
3)	4.9	2.0	1.2
4)	4.1	2.2	1.1
5)	3.8	1.6	0.9

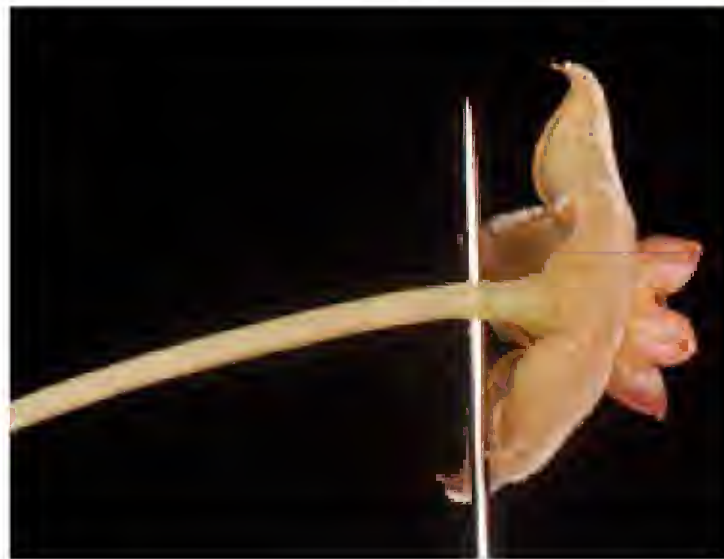
Range: 7.9- 3.8 2.6 – 1.6 1.3 – 0.9

Photos of plant and flowers by George Mendoza





Ca. 23 flowers
per cluster.



Reduced copy of the Holotype sheet:

